# Paul Doolan
# Chair of WP2/15
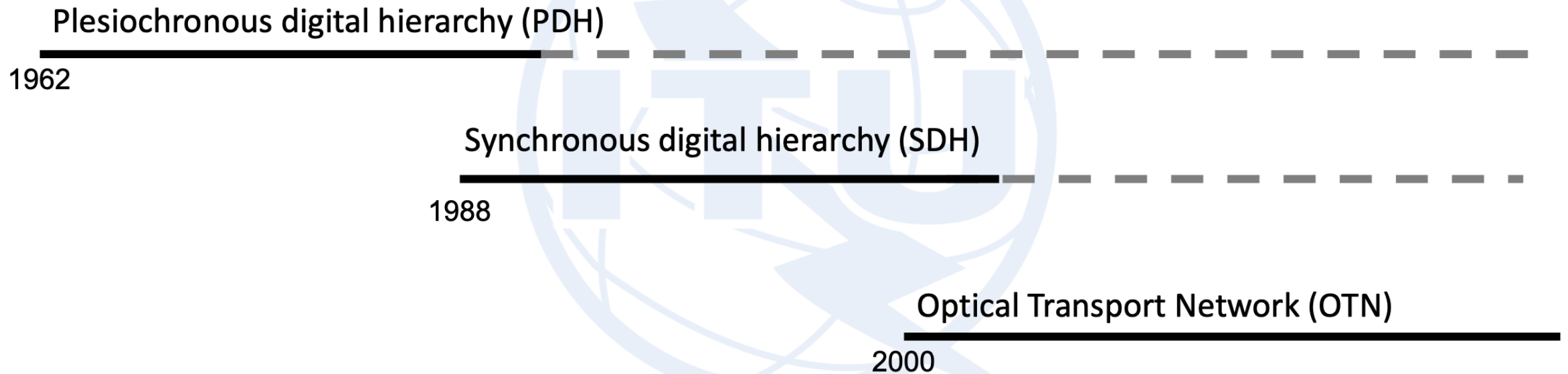# Hong Kong Research Center of Huawei, Hong Kong, China

Paul has been involved in standards development for over 25 years in organizations including IETF, BBF, OIF and ITU.  He made his first contribution to standardization in the ITU in 1998. In SG15 he has served as editor for several Recommendations, as Associate Rapporteur of Q12/15 and as Vice Chair of WP2/15.

Paul is currently serving as a senior consulting expert for Optical Standards at the Hong Kong Research Center of Huawei.
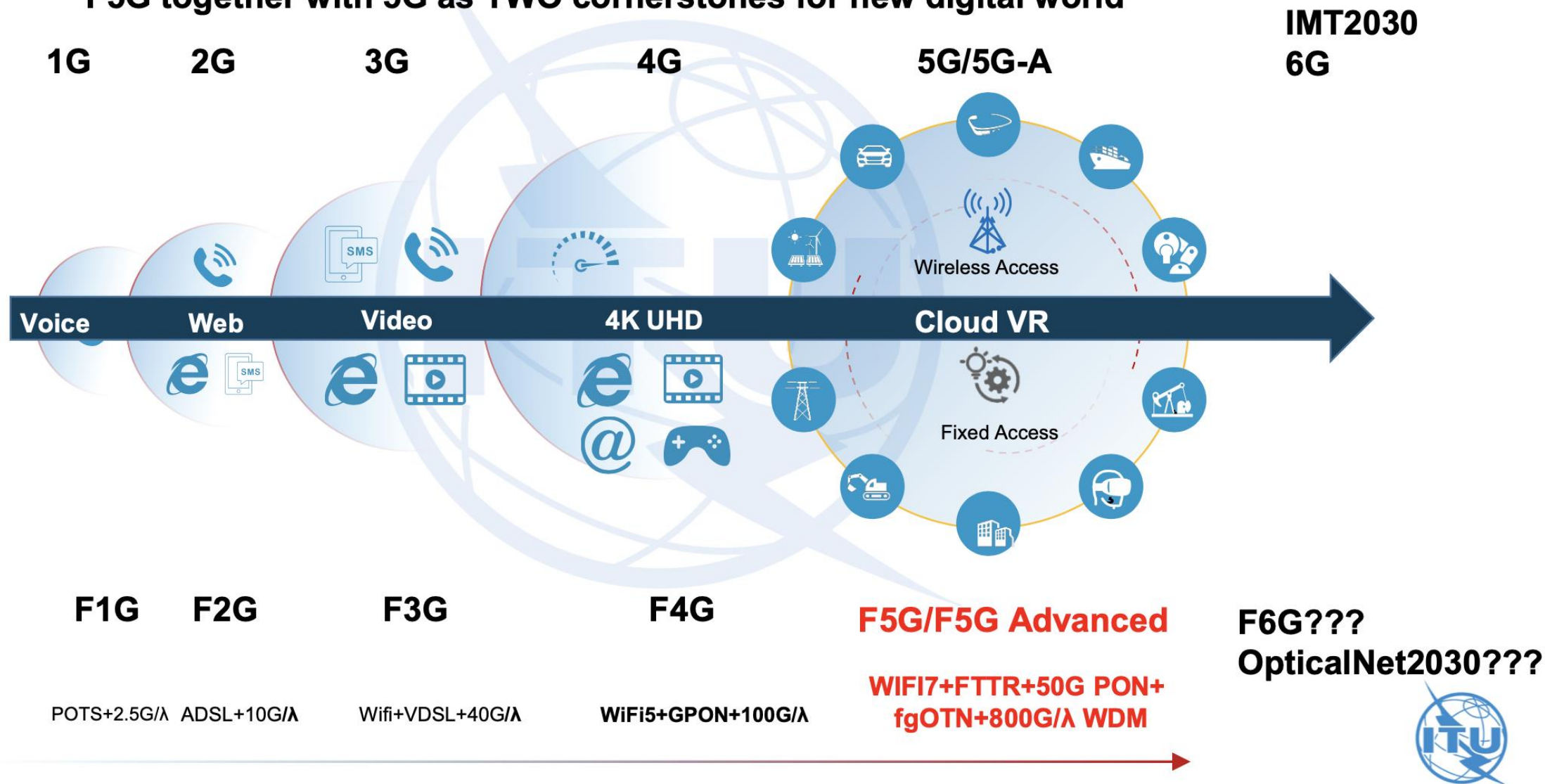
# Agenda

- Audience profile
- A common theme?
- Interactive audience survey!
- Q&A
- More interactive surveys!
- One degree of separation
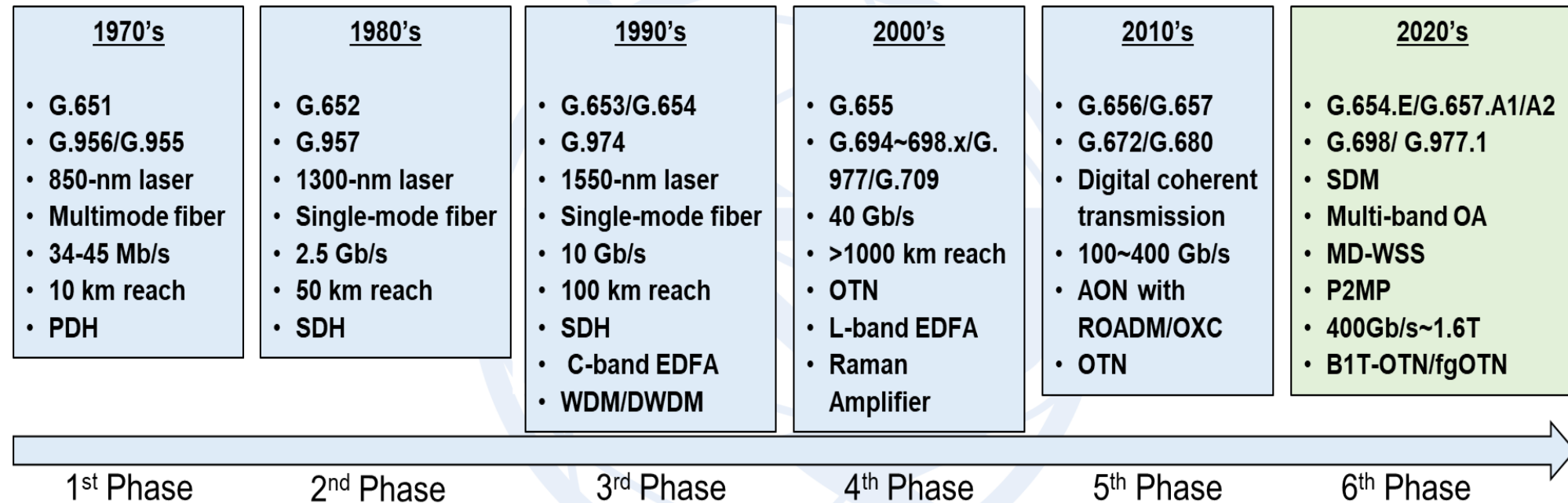- Conclusion

# The eras of digital transport networks

Plesiochronous digital hierarchy (PDH)

1962

Synchronous digital hierarchy (SDH)

1988

Optical Transport Network (OTN)

2000

# ETSI ISG F5G defines the generation of fixed networks

**F5G together with 5G as TWO cornerstones for new digital world**

| 1G | 2G | 3G | 4G | 5G/5G-A | IMT2030 6G |

Voice   Web   Video   4K UHD   Cloud VR

Wireless Access

Fixed Access

| F1G | F2G | F3G | F4G | **F5G/F5G Advanced** | F6G??? OpticalNet2030??? |

POTS+2.5G/λ   ADSL+10G/λ   Wifi+VDSL+40G/λ   WiFi5+GPON+100G/λ   **WIFI7+FTTR+50G PON+ fgOTN+800G/λ WDM**

# TR-OFCS - Optical fibres, cables and systems

| 1970's | 1980's | 1990's | 2000's | 2010's | 2020's |
|--------|--------|--------|--------|--------|--------|
| • G.651<br>• G.956/G.955<br>• 850-nm laser<br>• Multimode fiber<br>• 34-45 Mb/s<br>• 10 km reach<br>• PDH | • G.652<br>• G.957<br>• 1300-nm laser<br>• Single-mode fiber<br>• 2.5 Gb/s<br>• 50 km reach<br>• SDH | • G.653/G.654<br>• G.974<br>• 1550-nm laser<br>• Single-mode fiber<br>• 10 Gb/s<br>• 100 km reach<br>• SDH<br>•  C-band EDFA<br>• WDM/DWDM | • G.655<br>• G.694~698.x/G.977/G.709<br>• 40 Gb/s<br>• >1000 km reach<br>• OTN<br>• L-band EDFA<br>• Raman Amplifier | • G.656/G.657<br>• G.672/G.680<br>• Digital coherent transmission<br>• 100~400 Gb/s<br>• AON with ROADM/OXC<br>• OTN | • G.654.E/G.657.A1/A2<br>• G.698/ G.977.1<br>• SDM<br>• Multi-band OA<br>• MD-WSS<br>• P2MP<br>• 400Gb/s~1.6T<br>• B1T-OTN/fgOTN |

1st Phase     2nd Phase     3rd Phase     4th Phase     5th Phase     6th Phase

# News Report on ITU-T SG15's Vision

**LightReading**

SUBSCRIBE

Network Tech ⌄    Wireless ⌄    Software ⌄    IT Infrastructure ⌄    Digital Transformation ⌄    Business ⌄    Services ⌄    Heavy Reading Re

NETWORK TECHNOLOGY    OPTICAL NETWORKING

## ITU taps into operator expertise to envision optical standards for IMT-2030

Ken Wieland, contributing editor
October 28, 2024

🕐 7 Min Read

**Recommended for you**

**Optical network evolution towards 2030**
"SG15 has been actively engaged in shaping the future of optical telecommunications standards for decades and this will continue," remarked Parsons. Looking ahead to the next 5-10 years, he says that SG15 will likely focus on several key areas, including: next-generation of OTN (which may include an increased focus on energy-efficient optical network technologies); fiber evolution (a look at hollow-core fiber and the introduction of space division multiplexing to drive higher capacity with better efficiency); and network automation and intelligence.
"The Montreal meeting already suggested we form a focus group to study, communicate and coordinate on these matters, and Dr. Li even suggested a name: International Optical Telecommunications towards 2030 (IOT2030)", added Doolan. "I expect we'll see more interest in this suggestion as we start the next study period."

# ITU-T Director Onoe's Comment at UBBF2024

**Seizo ONOE**

Director, Telecommunication Standardization Bureau, International Telecommunication Union

In the AI era, networks are facing huge opportunities and challenges. ITU will work with industry partners to plan and build ==the 2030 generation== to better facilitate the rapid development of AI services, and use AI technologies to improve network capabilities. This will lay the solid foundation for the future intelligent world, and make greater contribution to social development.

# ITU Looks Ahead to the AI Age and Optical Networks towards 2030

Asked about the likelihood of ITU's Telecommunication Standardization Sector (ITU-T) defining a corresponding optical standard generation for the 2030's, effectively an optical version of IMT-2030…………

Onoe said that ITU-T is studying standards requirements for optical networks in view of IMT-2030, but that "optical fiber transport networks must evolve independent of the mobile generation."

"Achieving new generations is a very good goal," Onoe said, adding that new generations must also take care of older generations in the process.

# Survey Link:

## https://app.sli.do/event/it9s2ueyHSLJJ2BhqbgkyG



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**Would you agree that next-generation optical networks are important in the Era of IMT2030, Cloud, AI and much more?**

Yes

98%

No

2%

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**If SG15 works on "IOT-2030", standardizing optical networks towards 2030, in what way would you be interested? (Select all that apply)**

I am interested in the work and would contribute by attending ITU meetings

66%

I am interested in the work and would use it as input to my daily work (e.g., product design or graduate study)

63%

I am interested in the work and would share it with my colleagues

54%

I am not interested in the work

7%

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**Which ongoing ITU standards topics are of interest to you (Select all that apply)?**

Beyond-1Tb/s optical transceiver and transport network
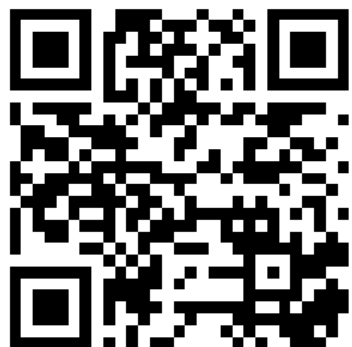
`71%`

AI for optical networks & optical networks for AI

`71%`

Distributed fiber optical sensing

`47%`

E2E-optimized service-oriented optical network (SOON)

`29%`

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**What aspect of being a standards expert do you find most appealing? (Select all that apply)**

Traveling the world to experience diverse cultures & good food

82%

Enjoying meaningful conversations and collaborations with global experts

58%

Contributing to innovative solutions that improve the lives of billions of people globally

56%

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Thank you !